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This and some other passages lead applicant to understand that when a retransmission occurs, the frames that were previously received without error are not retransmitted. Applicant now believes that this understanding was faulty, and that the Vanghi reference teaches that the entire message is re-transmitted.

As illustrated in FIG. 3A, a message that happens to have 6 frames begins transmission with an "inner set point"  $\eta$  set at some level that is a function of the message length, and transmission power is directly related to the value of  $\eta$ . A frame that is received correctly causes  $\eta$  to be reduced by a step and the next frame is transmitted at the lower power level, and a frame that is received incorrectly causes  $\eta$  to be increased by a step. An increasing step is significantly larger than a decreasing step. Thus, each frame in a message is sent with a power level that is different from the power level of the immediately previous frame. In FIG. 3A, during the first transmission frames 1 and 2 are transmitted successfully but frame 3 is not. During the second transmission the entire message is re-transmitted, but  $\eta$  is set so that while frames 1 and 2 are not received correctly, the consequent increases in  $\eta$  result in frame 3 being transmitted with enough power to be received correctly. It should be noted that the sizes of the steps must be arranged in a very particular way in order to achieve the above results, and that is one of the important features of the Vanghi arrangement. It should be also noted that one consequence of setting of  $\eta$  so that frame 3 is received correctly is that all subsequent frames that had been received correctly in the first transmission and which are re-transmitted are guaranteed to be received correctly again.

To summarize the above, two salient points of the Vanghi reference are

1. In case of a frame of a message being received with an error, the entire message is retransmitted, including frames that had been received correctly; and
2. Each frame of a message is transmitted with a power level that is different from the power level of the immediately previous frame.

Thus, applicant's previous argument that the Vanghi operation is wholly different from applicant's method **was, and still is, totally correct**, even though it was based on a slightly incorrect conclusion about the teachings of Vanghi because

1. whereas Vanghi retransmits the entire message when a frame of the message is received incorrectly, applicant's claim 1 specifies a subsequent transmission that

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- includes, of the frames previously transmitted, only the frames that were previously received incorrectly; and
2. whereas Vanghi transmits each frame with a different power level, claim 1 specifies a power level for an entire block of frames.

Addressing the instant Office Action (OA), claims 1, 2, 11, and 13 were rejected under 35 USC 103 as being unpatentable over Vanghi, US Patent 6,711,150 in view of Malkamaki, US Patent 5,563,895. The rejection appears to be a "cut and paste" copy of the rejection that the Examiner lodged in the previous OA and to which applicant responded.

The Examiner viewed applicant's arguments as unpersuasive, but applicant again respectfully traverses for the reasons presented below.

To explain the reasoning for holding that applicant's arguments were not persuasive the Examiner makes numerous assertions. As demonstrated below, however, those assertions are faulty.

1. **The Examiner asserts that the Vanghi method does not "require" use of the variable number of frames in the data burst/block.**

**Rebuttal:** Applicant believes that the Examiner's focus is incorrect and, consequently, the Examiner went astray. What is important is what Vanghi *teaches*, and not what Vanghi *does not require*.

Vanghi teaches transmission of messages, and as taught in col. 3, lines 12-14, a "transmits a message comprising a plurality of data frames" (emphasis supplied). Perhaps there are more explicit ways of saying that messages can have different numbers of data frames, but in applicant's view, that is quite clear that the referenced passage teaches that messages can have different numbers of data frames. There simply is no other reasonable explanation for the above-quoted and underlined language. If any doubt remains, however, it is surely wiped out by the extensive treatment of the message length issue, for example, in the Summary of the Invention section (at col. 3). Specifically, if the set point  $\eta$  of a message is a function of the message length, which is what the reference teaches, then messages must be allowed to have different lengths, for otherwise the taught functionality is unnecessary. Lastly, messages inherently have different

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lengths and any writing that wishes to limit messages to constant length messages would state so, and no such statement is found in Vanghi.

Hence, while the Vanghi reference does not require messages to have different lengths (and it does not require many other things), it is clear that (a) it teaches that messages can have different lengths and (b) it does not teach or suggest messages to have a single common length. Claim 1, in contradistinction, imposes the restriction that block  $i$  and block  $i+1$  have the same number of frames ( $k$ ), and since index  $i$  can have any value, that means that all blocks have a  $k$  number of frames.

**2. The Examiner asserts that applicant's arguments regarding a block of a given number of frames is not supported by the application.**

**Rebuttal:** First, beginning at the top of page 8, applicant's specification teaches that FIG. 3 depicts a block of separate and independent frames, and the specification also points out that while FIG. 3 shows only six frames in the block, the number of frames in a block can be different in different systems. That number is a design choice. That means that the design choice can be is to have  $N1$  frames per block in system A, and perhaps  $N2$  number of frames per block in system B. But if system A has  $N1$  frames per block, then that system is characterized by blocks that have a given number ( $N1$ ) of frames. Viewed conversely, there is no teaching or suggestion whatsoever in the specification that a given system may have one number of frames per block at some time, and another number of frames per block at another time. Thus, it is respectfully submitted that the notion of a constant number of frames in a block is clearly supported in the specification.

Second, apparently the Examiner actually agrees with applicant, because the previously lodged rejection under 35 USC 112, first paragraph, has been withdrawn. Thus, the Examiner's assertion that is discussed at this point is a puzzlement.

**3. The Examiner asserts that claim 1 is not limited to a constant number of frames in a block.**

**Rebuttal:** Respectfully, the Examiner is simply in error. Step (1) specifies that frames-block  $i$  includes  $k$  frames, step (3) specifies that  $j$  frames failed to correctly transmit, and step (4) specifies that block  $i+1$  has the  $j$  frames of block  $i$  plus  $k-j$  other frames. That means that frame  $i+1$  has  $k$  frames, just as frame  $i$ .

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4. The Examiner asserts that Vanghi teaches retransmitting failed frames, and that the length of the frames is used for calculating the S/N based on the target FER.

**Rebuttal:** The Examiner's assertion is correct if modified to remove ambiguity that is likely to lead to a misinterpretation; and that is that Vanghi teaches retransmitting the entire message (and not just the failed frames) when there are failed frames.

5. The Examiner asserts that the Malkamaki reference can be combined with the Vanghi reference because it would have been obvious to one of ordinary skill in the art "to combine the incorrectly transmitted frames with subsequent incoming signal frames of Malkamaki with the system of Vanghi to improve transmission speed of the system, as combining new and failed frames in one block will reduce the system delay by reducing the overhead in transmission and acknowledgement of these frames.

**Rebuttal:** Applicant takes no issue with the Examiner's test regarding whether to combine references, and what is taught by that combination, but applicant does take issue with the specific case at hand. What Vanghi teaches is a retransmission of the entire message, and a retransmission of frames that had been previously received correctly. What Vanghi also teaches is a very specific arrangement for such transmissions and retransmissions that depends on (a) the idea of retransmitting the entire message, (b) in the course of such message transmission each frame is transmitted with its own power setting, (c) the power setting is a function of the length of the message, and (d) the power setting is a function of the fraction of successfully transmitted frames. Malkamaki teaches a system where some time slots are reserved for retransmissions – whether or not retransmissions are needed. Therefore, at times some of those time slots may be empty, and at times not enough time slots are available for retransmission and consequently not all of the failed information in one block is transmitted in the next block.

The Examiner correctly points out that the number of reserved slots is flexible, and this flexibility is tied to the purpose for which the time slots are reserved, but purposes don't change from instant to instant. Once a purpose is identified, and the system is changed to accommodate the "purpose," then the number of reservation time slots is fixed. It's not too different from the comparison between automatic transmission

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of a car and manual shift. With manual shift, a driver can change the gear ratio between the engine and the wheels by choosing from among the "first," "second," "third," or "fourth" gear; but once selected, the gear ratio is fixed. In automatic transmission, that ratio changes continually as the need changes. Based on the above, it is clear that combining the teachings of these two references does not yield, or suggest, to anyone that the entire *modus operandi* of Vanghi -- notions (a) through (d) above -- should be totally changed. It is for this reason that a skilled artisan would not choose to combine these references. For example, if the entire message of Vanghi is NOT retransmitted, the Malkamaki reference provides no hint as to what to do relative to the power with which the frames are transmitted.

Moreover, the Examiner's reasoning that the change in the entire *modus operandi* of Vanghi would reduce overhead transmission (and that's a beneficial result) is fundamentally faulty. Such reasoning would apply even if applicant's invention was, for example, the use of four-way diversity (space-time-frequency and polarization) in the transmission of frames. If such an invention improves data transmission rate, then following the Examiner's current assertion, the Examiner would be free to say that the four-way diversity invention is obvious because it will "reduce system delay by reducing the overhead in transmission." In other words, the fact that applicant's invention is better does not, *ipso facto*, make the modification of another system to work like applicant's invention obvious. In the case at hand, even if Malkamaki were to suggest the retransmission of only the frames that failed and all of the frames that failed (rather than a fixed number of reserved time slots) it would still not suggest that the entire *modus operandi* of Vanghi ought to be scrapped in favor of some other approach.

**6. The Examiner asserts that the rejection of claim 2 was justified because it "clearly matched the teachings of Vanghi."**

**Rebuttal:** Applicant's main argument was not that the rejection was not justified, but that the Examiner failed to give any explanation as to the reason for the rejection. Applicant still believes that claim 1 is not obvious, at least by reason of its dependence on claim 1. Applicant also notes that whereas claim 2 specifies that the power level is reset to "said first power level," and that power level pertains to the entire block. The Examiner states that the setting of the power level in the Vanghi reference is "based on the received frame

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quality.” That is true, but the power settings are frame by frame, and no two consecutive frames have the same power. Obviously, that is totally different from the power settings of claims 1 and 2.

7. **The Examiner reiterates that Vanghi teaches the limitations of claim 11, stating that “Vanghi clearly teaches limitations of claim 11, directed to changing targeted FER requirements for different power transmit levels, necessitated by the transmission errors 5:63-6:20.”**

**Rebuttal:** The above quoted Examiner statement contains two thoughts: (a) that Vanghi teaches the limitations of claim 11, and (b) the limitations of claim 11 are directed to changing targeted FER requirements for different power transmit levels, necessitated by the transmission errors. It appears that the Examiner is establishing the causal relationship as follows: (b) is true, and since Vanghi teaches (b) therefore (a) is true. However, it is not quite clear that this is what the Examiner is asserting.

Taking point (b) first, applicants respectfully submit that claim 11 does not specify, or otherwise define “changing targeted FER requirements for different power transmit levels.” Rather, it changes the power level to target a second FER. More importantly, claim 11 specifies

transmitting a second block of second frames at a second power level to  
target a second frame error rate

That is, the block is transmitted at a second power level. In contradistinction, it is quite clear (and already mentioned above) that transmission in the Vanghi system employs different power levers for different frames. It is actually guaranteed that a frame is transmitted at a different power level than the immediately preceding frame. This is contrary to what claim 11 specifies. In other words, neither (b) nor (a) in the Examiner’s assertion is valid.

Since the limitation of claim 11 is not taught by the Vanghi reference, and since the different-power-for different-frames is a most essential part of the Vanghi approach, it is respectfully submitted that Vanghi does NOT teach at least the one of the limitations of claim 11.

The Examiner made no comment in the “Response to Arguments section of the instant OA regarding independent claim 13.

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Since the rejection of claims 1, 2, 11, and 13 appears to be a "cut and paste" copy of the rejection in the previous OA, and since applicant responded to that rejection in the previously filed response, and also addressed the Examiner's Response to Arguments presented in the instant OA, applicant formally adopts the arguments set forth in the immediately previous amendment, as modified and augmented by the arguments herein, and respectfully submits that the instant amendment is fully responsive, and that the Examiner's rejection of claims 1, 2, 11 and 13 has been overcome.

The Examiner still has not stated the formal basis for the rejection of the claims 3, 4, 6, 9, 10, 12, 15, and 18-21. From the language used by the Examiner, however, it appears that the rejection of these claims is based on 35 USC 103 in view of Vanghi. It is so assumed in the remarks that follow.

Applicant believes that this amendment should, and will, result in an allowance. However, if that is not the case, and if the assumption is incorrect, it is expected that the Examiner will correct the assumption in the next Office Action (having withdrawn the FINALITY of the present Office Action).

In connection with claims 3 and 6, the Examiner states that Vanghi teaches the system as a CDMA and "the incoming signal frames are portions of the signals of the CDMA network." Respectfully, the Examiner's statement is not clear. First, claim 3 does not use the term "portion" but, rather, the term "signal segments;" and it's only a guess that the Examiner asserts that "signal segments" corresponds to "signal portions." Second, the reference also does not use the term "portion" in connection with signals<sup>1</sup>. Since the reference does not speak of signal "portions," the Examiner needs to identify what the Examiner defines as "portions of the signals of the CDMA network."

Applicant appreciates that the Vanghi system deals with a CDMA signal, and that one might be considering the combined signal from all transmitters as comprising "signal portions," where a signal portion (in the singular) is the CDMA-modulated signal of a single transmitter. While applicant perceives nothing else that might be considered a portion of the signals of the CDMA network, it still is necessary for the Examiner to

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<sup>1</sup> The term "portion" is used in connection with step size calculations relative to FIG. 3B.

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clearly state what the Examiner believes to correspond to the "signal segment" term of claim 3 (particularly, if it is different from the "portion" perceived by applicant).

As indicated above, applicant believes that this amendment should, and will, result in an allowance. However, if that is not the case, applicant respectfully requests that the Examiner explain what the Examiner asserts to be the correspondence next Office Action (having withdrawn the FINALITY of the present Office Action).

If the term "signal segments" corresponds to the combined CDMA signal of all of the transmitters, then claim 3 might be rewritten to comprise the limitation that the

incoming signal frames are generated from data extracted from the CDMA signal of all of the transmitters, received from a network.

However, in Vanghi the signal frames are not data extracted from the combined CDMA signal of all of the transmitters. More properly, the frames of Vanghi are generated from data extracted from a signal segment (in the singular). Thus, in addition to the fact that claim 3 is believed patentable by virtue of its dependence on claim 1, applicant believes that claim 3 is patentable because the limitation of claim 3 is not taught or suggested by Vanghi. (The Malkamaki reference contributes nothing relative to the limitation expressed in claim 3.)

Claim 4 specifies that an acknowledgement is generated "corresponding to each of the received segments." Acknowledgements are sent in the Vanghi system but, clearly, there is no teaching in Vanghi that an acknowledgement (in the singular) is generated for each of the segments, i.e., for each of the CDMA signals of individual transmitters. Therefore, given the correspondence perceived by applicant as the only reasonable one (for lack of a clearly asserted correspondence from the Examiner) it is clear that claim 4 is not obvious in view of Vanghi. (The Malkamaki reference contributes nothing relative to the limitation expressed in claim 3.)

The Examiner rejected claim 6 together with claim 3, on which claim 6 depends, but the Examiner failed to address the limitation that claim 6 specifies. Claim 6 specifies that the frames, which according to the Examiner correspond to data extracted from the collection of CDMA signals, are RLC frames. There is nothing in either of the references to suggest that it is clear that that Vanghi does not teach or suggest generating an acknowledgement (in the singular) in response to each of the individual CDMA-



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modulated signals that are contained in the network CDMA signal. Therefore, claim 4 is not obvious in view of Vanghi.

Regarding claims 9 and 10 the Examiner addresses the fact that Vanghi teaches correlating power levels to FER, but the Examiner fails to address the fact that Vanghi changes the power level from frame to frame, whereas claims 9 and 10 speak of the power levels that are extant throughout an entire block.

Regarding claim 12, it also includes a limitation regarding the transmission of a block of (third) frames at a (previously defined) power level, but the Examiner fails to note that the Vanghi references teaches transmitting each frame at its own power level, and no two adjacent frames employ the same power level.

Regarding claim 19, the Examiner recognizes that the combination of Vanghi and Malkamaki does not teach frame-blocks that have a constant number of frames, but opines that it would have been obvious to use the same size frame blocks. Applicants respectfully disagree. Vanghi focus is the transmission of data burst messages, and focuses on the fact that second generation CDMA systems have message sizes that are limited, typically to 8 frames or less. Since the number of frames in a message is small, the focus on messages, rather than on a constant block size, is natural. There is no reason to modify the Vanghi system to a constant block size approach.

It appears that the Examiner employs the hindsight of applicant's invention to modify the Vanghi teachings using, again, the ever-applicable "will simplify the design" reason. Respectfully, this approach is inappropriate.

In light of the above remarks, applicant respectfully submits that all of the Examiner's rejections have been overcome. Reconsideration and allowance are respectfully solicited.

Dated: 4/10/07

Respectfully,  
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